A Mindfulness-Based Intervention for the Treatment of Binge Eating: A Single Case Design

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Abstract
In this thesis I examined the utility of a mindfulness-based intervention to individually treat a woman in her late 40's with a subthreshold binge eating disorder. The intervention used was an adapted protocol from an eight-week group format to treat an individual client over the course of 16 weeks. Clinically significant improvements were found in frequency of binge episodes, depression symptoms, eating concerns, and dietary restraint. Although they were in the expected direction, the improvements in anxiety, overall eating disorder symptoms, weight concern, and shape concern were not clinically significant. Additionally, the client’s mindful awareness actually decreased slightly over the course of treatment. Future research should include dismantling studies to investigate the impact of the various techniques used in mindfulness-based interventions for eating disorders, and explore the differences in effectiveness between mindfulness-based interventions conducted in group versus individualized formats.

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A SINGLE CASE DESIGN

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APPROVED:

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ABSTRACT

In this thesis I examined the utility of a mindfulness-based intervention to individually treat in a woman in her late 40’s with a subthreshold binge eating disorder. The intervention used was an adapted protocol from an eight-week group format to treat an individual client over the course of 16 weeks. Clinically significant improvements were found in frequency of binge episodes, depression symptoms, eating concerns, and dietary restraint. Although they were in the expected direction, the improvements in anxiety, overall eating disorder symptoms, weight concern, and shape concern were not clinically significant. Additionally, the client’s mindful awareness actually decreased slightly over the course of treatment. Future research should include dismantling studies to investigate the impact of the various techniques used in mindfulness-based interventions for eating disorders, and explore the differences in effectiveness between mindfulness-based interventions conducted in group versus individualized formats.

Keywords: binge eating disorder (BED), eating disorder, mindfulness, single case study, mindfulness-based intervention, subthreshold binge eating disorder.
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INTRODUCTION

Eating Disorders

Eating disorders are classified in the Diagnostic and Statistical Manual of Mental Disorder, 4th ed. (DSM-IV-TR; American Psychiatric Association [APA], 2000) as severe disturbances with one's eating. These disturbances range from strict restriction of caloric intake to uncontrollable urge to consume large quantities of food in a very short period of time. In the DSM-IV-TR (APA, 2000), eating disorders are categorized into three groups: Anorexia Nervosa, Bulimia Nervosa, and Eating Disorder Not Otherwise Specified. Anorexia Nervosa (AN) is classified as an unwillingness to maintain a healthy weight by restricting food intake and experiencing an overwhelming concern of one’s shape and weight. Bulimia Nervosa (BN) consists of a cycle of uncontrollable urges to consume large quantities of food in a small period of time and then use compensatory methods of getting rid of this food, such as self-induced vomiting. Eating Disorder Not Otherwise Specified (EDNOS) is a more ambiguous category comprised of a mixture of eating disordered behaviors, such as purging, restricting, binging, as well as compulsive exercising, that do not meet the diagnostic criteria of AN or BN (APA, 2000). It has been suggested that the vague nature of EDNOS contributes to why it is currently the most commonly diagnosed eating disorder (Machado, Machado, Goncalves, & Hock, 2007).

Eating disorder not otherwise specified. The diagnostic criterion of EDNOS simply states that this “category is for disorders of eating that do not meet the criteria for any specific Eating Disorder” (APA, 2000). Additionally, the individual must also experience clinical distress or functional impairment due to their maladaptive eating behaviors (APA, 2000). Examining the ways one can meet criteria for an EDNOS diagnosis often involves exploring the continuum of
disordered eating behaviors and the biological aspects involved. There are many ways that a patient may receive a diagnosis of EDNOS. In some cases, EDNOS is diagnosed when the biological criteria have not been met (e.g., menses or being below 85% of their body weight as in AN). In other cases, the frequencies of the maladaptive behaviors are below the threshold requirements (e.g., the frequency of binge-purge cycle in BN). In addition, a patient may engage in a mixture of behaviors (i.e., restricting caloric intake and purging after eating anything) or engaging in specific behavior (e.g., binge eating without purging) (APA, 2000).

**Binge eating disorder.** In the DSM-IV-TR, Binge Eating Disorder (BED) is an example of an EDNOS and it is defined as “recurrent episodes in binge eating in the absence of the regular use of inappropriate compensatory behaviors characteristic of Bulimia Nervosa.” The current diagnostic criterion for BED provides a vague model disorder, in which the criterion closely resembles the diagnostic criterion for BN only with the removal of the requirement of inappropriate compensatory methods following a binge episode. It has been suggested that for the upcoming creation of the DSM-V. In the next edition of the DSM-V, the BED will be classified as its own disorder and will no longer be grouped within the category of EDNOS. With this new classification, the updated diagnosis will create a clearer picture of the behaviors associated with binge eating and distress that occurs in BED. The proposed DSM-V criteria states BED is categorized by consuming a large quantity of food in a short period of time, experiencing a loss of control while eating, consuming food rapidly, continuing to eat past the point of satiety and at times to the point of discomfort, eating in secret due to feelings of embarrassment about the quantity of food, and feelings of disgust or guilt due engaging in a binge. These behaviors are required to occur at least once a month for three months, as well as an absence of any compensatory methods (APA, 2010).
Similarly to the broad category of EDNOS, BED has been shown to have both a higher lifetime prevalence rate and a higher prevalence within a 12-month period compared to AN and BN (Hudson, Hiripi, Pope, & Kessler, 2007). They found that 4.0% of men and 4.9% of women experience periods where they engage in binge eating that meets criteria for a diagnosis of BED at some point in their lifetime (Hudson et al., 2007). This finding illustrates that BED is not only more prevalent than other eating disorders, but also demonstrates how binge eating affects almost as many men as women (Hudson et al., 2007).

As the DSM-V BED diagnosis is being solidified, there is still debate surrounding what specifically constitutes a binge. According to the currently proposed criteria, a binge is classified as “eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat in a similar period of time under similar circumstances” (APA, 2010). Despite the debate, a number of researchers have suggested that the size of the binge may not be as important as originally considered. Several researchers have suggested that strictly focusing on the caloric intake of a binge may not be an efficacious way to diagnosis binge eating. Researchers have found that the experience of losing control during a binge episode as well as the perceptions regarding food being forbidden or food consumed was an unnecessary amount caused similar amounts of distress regardless of the amount of food consumed (Fairburn & Wilson, 1993; Pratt, Niego, & Agras, 1998; Rosen, Leitenber, Fisher, & Khazam, 1986; Striegel-Moore, Dohm, Solomon, Fairburn, Pike, & Wilfley, 2000). For example, Rosen et al. (1986) found that 65% of the binge episodes identified by patients with BN contained roughly the same amount of food during a binge episode as compared with food a non-binge episode. Striegel-Moore et al. (2000) also provided support for this stance, stating that women who engaged in subthreshold binges did not significantly differ from women who met
full criteria for BED, expressing similar levels of distress regarding shape and weight, psychiatric distress, as well as experiencing role impairment as a result of their binge eating. This debate is related to the fact that there has been little evidence to support the existence of a caloric threshold during a binge episode to cause significant distress or deem an episode of eating pathological in nature (Fairburn & Wilson, 1993; Garner, Shafer, & Rosen, 1992; Pratt et al., 1998; Rosen et al., 1986; Striegel-Moore et al., 2000).

Rosen et al. (1986) suggested the distorted perception of one’s loss of control during an eating episode—as well as the perception of the amount of food consumed during the episode as excessive—may be more important than the amount of food consumed. In examining the patients’ self reported food diaries, the researchers found the patients would often eat similar amounts of food, but only classify dessert or snack items as binge episodes, regardless if they consumed the same amount of calories from a meal consisting of fruits or vegetables (Rosen et al., 1986). They posited this discrepancy in the patients’ classification was related to the way in which the patient perceived the food; whether the food was forbidden or “bad”, which is often the case with dessert or snack foods, or if the food was seen as being healthy or “good”, like fruits and vegetables often are (Rosen et al., 1986).

Colles, Dixon, and O’Brien (2008) examined another diagnostic criterion of BED—loss of control—in order to see how significant this experience is to binge eating disorder. They found participants who experienced higher levels of emotional disturbances related it to having lost control of their eating behaviors regardless of the size of the binge. Colles et al. (2008) found a positive correlation between the feeling of loss of control during the binge episode and frequency of depression symptoms, in addition to finding a positive relationship between the experiences of loss of control during a binge and having higher levels of body dissatisfaction.
Colles et al. (2008) examined the continuum of binge eating by dividing participants into two groups: those with objective binges versus those with subjective binges, and later compared the two binge groups with a sample from the general population that had no eating disordered behaviors. They found that the correlation between loss of control and depression/body dissatisfaction was present in participants in both binge eating groups, but was the strongest among patients who met full criteria of BED, and absent from the general population (Colles et al., 2008).

Freeman and Gil (2004) examined the various factors that increase and inhibit the likelihood of engaging in binge eating behavior. In examining these factors, they found the experience of psychological distress and depressed affect was often predictive of likelihood of engaging in a binge in the near future. They discovered that using the method of distraction as a coping skill with the intention of decreasing the likelihood of a binge later in the day was not an effective method, but was in fact found to be a predictive factor of a binge episode (Freeman & Gil, 2004).

For many patients binge eating provides a way to escape their emotions, cope with their problems, and avoid their own awareness of the current experience (Freeman & Gil, 2004; Heatherton & Baumeister, 1991). Heatherton and Baumeister (1991) investigated the relationship between the cognitive escape theory and binge eating as a way to decrease one’s awareness, especially when dealing with negative emotional stimuli. They found that the escape theory, which is comprised of “high standards and expectations, high and aversive self-awareness, negative affect, cognitive narrowing, removal of inhibitions, and irrational beliefs,” encapsulates many of the hypothesized etiologies of BED (Heatherton & Baumeister, 1991, p. 89). Many of the etiologies can be conceptualized as the result of Westernized culture’s standard...
of beauty, such as the thin ideal, which can cause chronic dieting, body dissatisfaction, low self-esteem, and ultimately lead to comorbid depression and anxiety (Garner, Olmsted, & Polivy, 1983; Heatherton & Baumeister, 1991; Katzman & Wolchik, 1984). Frequently patients with BED have illustrated distorted cognitions regarding their food, in which the patient creates dichotomous beliefs that limit food into two categories, “good” and “bad” or engages in overgeneralization after violating a rule of their diets and believe by failing to abide by food rules indicates that they are failures as well (Heatheron & Baumeister, 1991; Johnson & Connors, 1987). Various researchers have shown that the preconceived beliefs about the foods one consumes are more influential than the accurate caloric content of the food (Knight & Boland, 1989; Rosen et al., 1986; Spencer & Fremouw, 1979).

As with many eating disorders, BED has a high rate of comorbidity with depressive symptoms, and investigators have found that negative affect often triggers and follows binge-eating episodes (Colles et al., 2008; Polivy & Herman, 1993). In exploring the positive relationship between negative emotions and binge eating, Polivy and Herman (1993) suggested that the experience of a negative state can involve a negative self-focus, in which binge eating can be used as a way to decreased the intensity of negative cognitions as a way to quiet the negative self criticisms. Polivy and Herman (1993) also argued that people may use binge eating as a way to self-regulate their emotions and that some people may engage binge eating simply because of how comforting the act of eating can be for them. Research suggests that psychological distress, the experience of loss of control, and the perceptions of the foods consumed are all salient factors when conceptualizing the diagnosis of BED (Fairburn & Wilson, 1993; Garner, Shafer, & Rosen, 1992; Heatherton & Baumeister, 1991; Polivy & Herman, 1993; Pratt, Niego, & Agras, 1999; Rosen et al., 1986, Striegel-Moore et al., 2000).
In addition to the psychological problems associated with BED, there are also many health and social consequences of binge eating and obesity. A major consequence of engaging in binge eating is high correlation of binge eating and obesity (Singh et al., 2008). Researchers have found that 30% of obese patients who were electing to have bariatric weight loss surgery have met the criteria for the diagnoses of BED (Saunders, 1999). Obesity itself is often a problem for those with BED, but perhaps more concerning are the medical complications associated with obesity (Singh et al., 2008; World Health Organization [WHO], 2000). For example, obesity can make one more susceptible to respiratory problems, sleep apnea, type 2 diabetes, hypertension, infertility, skin problems, cardiovascular disease, as well as cause death (World Health Organization [WHO], 2000). In recent years, obesity has replaced smoking as the highest health care costs to society (Sturm, 2002.)

The negative social biases of obesity have been explored in various populations and environments by researchers for the past 40 years. Negative biases have been found in employment, health care services, education, and within their own peer groups (Canning & Mayer, 1966; Cramer & Steinwert, 1998; Kraig & Keel, 2001; Maroney & Golub, 1992; Price, Desmond, Krol, Snyder, & O’Connell, 1987; Richardsonson, Goodman, Hastrof, & Dornbusch, 1961; Roehling, 1999; Teachman & Brownell, 2001; Wiese, Wilson, Jones, & Neises, 1992). These biases affect overweight and obese people from a very young age, usually beginning around pre-school. At this age their peer group is beginning to develop and express a preference for playing and interacting with thinner classmates, citing that the obese classmates are not as intelligent or attractive as their other students (Brylinksy & Moore, 1994). Children who struggle with obesity may encounter negative stigmas from the adults in their life. Research has found that parents of obese children often spend less time with them and provide them with less
emotional and financial support than their children who are thinner. Studies have also shown that teachers frequently expect less academic achievements from obese children (Crandall, 1995; Neumark-Sztainer, Story, & Faibisch, 1998). These factors that are present early on in their lives can negatively impact, and in turn result in a negative impact in their future academic performance. Studies have found that obese students report lower college acceptance rates and may more frequently experience wrongful dismissals from colleges and universities (Canning & Mayer, 1966).

The discrimination and negative biases play a constant role in an obese person’s daily life. These difficulties do not end once they receive a diploma or a degree, these biases travel with them into a variety of arenas. Qualified job applicants who are obese are less likely to be hired than a thinner person who is equally qualified. If they are hired, many employers see overweight people as being incompetent, lazy, and lacking self-discipline. These views negatively impact an employee’s promotions, wages, and employment status (Bordieri, Drehmer, & Taylor, 1997; Pagan & Davila, 1997; Paul & Townsend, 1995; Register & Williams, 1990; Roehling, 1999). People who are overweight or obese continuously fight against negative stigmas within the health care setting, a battle that creates a barrier to health services in order to avoid these biases and stigmas, which can negatively influence their general health (Maroney & Golub, 1992; Price et. al., 1987; Wiese et. al., 1992). These social injustices can place people who are obese at greater risk for psychopathology, lower socio-economic status, and cause people to neglect their health problems, especially health problems commonly associated with obesity (Carpenter, Hasin, Allsion, & Faith, 2000).

**Treatment of BED**

Currently, there are several different treatment modalities for addressing the issue of BED.
The well-established treatments for BED are interpersonal therapy (IPT) and cognitive behavioral therapy (CBT), and recently there have been promising results from studies examining dialectical behavioral therapy (DBT; Fairburn & Wilson, 1993; Wilfley et al., 2002; Wisniewski, Safer, & Chen, 2007).

**Cognitive behavioral therapy.** In CBT, the patient’s behaviors, cognitions about oneself, and the mechanisms that maintain these behaviors and cognitions are examined (Fairburn & Wilson, 1993). During treatment, the therapist engages a patient in activities, such as self-monitoring cognitions and food intake, as well as explores binge-eating triggers, in order to gain a more in depth understanding of the patient’s behaviors and cognitions. The therapist will help the patient examine and challenge any cognitive distortions that the patient may hold surrounding food, weight, and body shape (Fairburn & Wilson, 1993). In CBT, the therapeutic process is concluded by the therapist helping the patient prepare for relapse by creating prevention plans and examining the patient’s warning signs of a relapse (Fairburn & Wilson, 1993).

CBT is often the preferred mode of treatment among patients as well as therapists due to its effectiveness and how quickly patients respond to treatment (Fairburn & Wilson, 1993). CBT has shown to decrease the frequency of binge episodes, improve the Eating Disorder Examination (EDE) Restraint scores, increase self-esteem, and decrease in disinhibition during eating and depressive symptoms (Gorin, Le Grange, & Stone, 2003; Wilfey et al., 2002). The behavioral changes in binge eating behavior that occurred as a result of CBT treatment were found to be more enduring than the changes in behavioral weight loss groups, wait-list control group, and psychoeducation (Brody, Masheb, & Grilo, 2005; Fairburn & Wilson, 1993; Wilfley et al. 2002).
**Interpersonal therapy.** In IPT, BED is conceptualized as an interpersonal problem, which possibly began during adolescence and the binge eating acts as a coping strategies that later develops an association with interpersonal distress (Fairburn & Wilson, 1993; Wilson & Fairburn, 2000). Due to the patient’s “faulty interpersonal responding,” IPT focuses on improving the interpersonal functioning, which conceptually results in a decrease in the urge to engage in binge eating. During the therapeutic process, the patient is encouraged to explore any interpersonal problems, especially in the areas of “grief, interpersonal role disputes, role transitions, and interpersonal deficits” (Wilfley et al., 2002, p.714). IPT has shown promising results, especially with patients who have co-occurring personality disorders or who have been unsuccessfully with CBT the past (Fairburn & Wilson, 1993; Wilson & Fairburn, 2000). IPT has shown to have longer lasting improvements in the areas of negative judgments about eating, shape, and weight than other modalities and has proven itself to be equivalent to CBT in the treatment of BED (Wilfley et. al., 2002).

**Dialectical behavioral therapy.** In DBT, the focus is on providing the patient with skills to enable them to better regulate their emotions, especially negative emotions, which can trigger binge episodes or self-injurious behavior (Telch, Agras, & Linehan, 2001; Wisniewski, Safer, & Chen, 2007). In DBT the development of BED is conceptualized as the result of growing up in an emotionally invalidating environment, which, for example, may include issues such as teasing about one’s body shape or weight. During the therapeutic process in DBT, patients begin by focusing on the behaviors that are affecting the patients’ quality of life by creating a hierarchy of target behaviors. In order to reduce unwanted behaviors, the therapist will help the patient develop skills that address fighting urges, such as “surfing the urge,” skills that increase their
awareness and acceptance, using mindfulness exercises, such as mindful eating exercises, as well as skills that increase the patients’ emotional regulation. DBT has shown similar promising results that have been found for CBT and IPT in the treatment of BED (Telch et al., 2001).

**Mindfulness**

**Definition.** Kabit-Zinn (2003, p.145) defined mindfulness as “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment.” Bishop et al. (2004) suggested a two part definition; the first part addressing self-regulation of attention of the experience at hand, in order to increase recognition of thoughts in the moment; the second part examines one’s own experiences in the present moment with curiosity, openness, and acceptance. Similarly, Germer (2005, p.1) defined mindfulness as a “deceptively simple way of relating to experience…to lessen the sting of life’s difficulties, especially those that are seemingly self imposed.” Lastly, Baer and Kriememeyer (2006, p.3) define mindfulness as “a way of directing attention.” Baer and Kriememeyer (2006, p.4-5) suggest that the practice of mindfulness develops qualities such as “awareness, insight, wisdom, and compassion.” Although there are various definitions of mindfulness, the concept of mindfulness is being integrated into a mix of existing theoretical approaches from psychoanalytic to behaviorism. Research in the area of mindfulness has been developing rapidly and diversely, ranging from investigating how efficacious mindfulness treats various disorders to examining how mindfulness changes way the brain works (Kabat-Zinn, 2003).

In the first meta-analysis of mindfulness-based treatments, Baer (2003) reviewed the various studies that used mindfulness-based interventions to treat a myriad of illnesses and disorders. In the review, she discussed how mindfulness therapies have been used to successfully
treat a number of conditions, including chronic pain, anxiety disorders, binge eating disorder, recurrent major depressive episodes, fibromyalgia, and psoriasis. Various other researchers have found mindfulness to be effective way to reduce negative mood disturbances and stress levels in patients with cancer, decrease in problematic behaviors in people struggling with disordered personalities, significantly increase in physiological and psychological well being in low income Latino participants, as well as decrease the severity of medical and psychological symptoms in medical patients (Baer, 2003).

In a review article, Kabat-Zinn (2003) discussed the history and origin of mindfulness, as well as various studies that implemented mindfulness-based interventions, and possible future directions for the field. Kabat-Zinn (2003) discussed the deep roots of the practice of mindfulness that began in Buddhism and Eastern philosophy, all while explaining the importance of mindfulness in the cultures in which it is practiced. In this review, mindfulness was found to be effective in reducing psoriasis severity, decreasing levels of prostate-specific antigens (which can lead to development prostate cancer), changing the way the brain activates and increasing levels of positive emotions, as well as creating a more positive affect in subjects from the general population (Kabat-Zinn, 2003).

More recently, Brown, Ryan, and Creswell (2007), completed an exhaustive review of mindfulness studies and measures, detailing inventories that measured mindfulness as well as recent studies that explored the health, social, and psychological benefits of mindfulness. The studies they reviewed found extremely promising results urging the continuation of the research and further development in the area mindfulness-based interventions and approaches (Brown et al., 2007). The literature reviewed indicated positive changes in physical health, such as lower resting heart rate and lower blood pressure in middle school children after being exposed to 30
days of mindfulness meditation, decreased medical symptoms in patients struggling with a chronic pain or chronic disease (e.g., cancer or HIV), and increased activity in the right prefrontal cortex and right anterior insula in participants who were experienced in the practice of mindfulness meditations (Brown et al., 2007). Mindfulness also positively impacted ones’ psychological wellbeing and social functioning (Brown et al, 2007). Research has found that mindfulness allows for more flexible thinking, quicker recovery from negative emotional stimuli or events, an increase self-control, more fulfilling personal relationships, an increase in creativity, attention, and empathy, as well as a higher emotional intelligence (Brown et al., 2007).

**Mindfulness Based Therapies.** The practice of mindfulness has long been an attractive idea for psychologists, beginning with some of the founding fathers of psychoanalysis. Freud wrote in a letter to a friend that he felt overwhelmed by the Eastern philosophy and it might be something that is beyond his grasp. Freud later wrote in his book *Civilization and Its Discontents,* that the practice of mediation could be a way to regress and explore ones’ unconsciousness (cited in Epstein, 1995; Freud, 1930/1961). Jung had a more affirmative experience with exploring the depths of Eastern philosophy. Jung described his interest in Eastern philosophy as a “lifelong curiosity” (Germer et al., 2005, p.10). He wrote several commentaries and prefaces about Eastern philosophy and its place in the Western world in various books, the most well known being *The Tibetan Book of the Dead* (Germer et al., 2005).

Over the past 30 years, a number of mindfulness-based treatments have been developed to address various disorders. These treatments are briefly reviewed below.

**Mindfulness based stress reduction.** In 1979, Jon Kabat-Zinn developed mindfulness-based stress reduction program (MBSR) to treat conditions ranging from heart disease, chronic
pain, cancer, AIDS, stress-related gastrointestinal problems, chronic headaches, high blood pressure, anxiety disorders, sleep disorders, and panic disorders. The MBSR program consists of 8 weekly 2-½ -3 hour sessions, which includes roughly 30 patients and two instructors who facilitate the group. Each week, patients are assigned mindfulness homework assignments that range from body scans to meditations to becoming aware of the pleasant and unpleasant events that occur in one’s life (Kabat-Zinn, 1982). The homework serves as practice meditation and mindfulness skills outside of the group and incorporates these skills to foster a mindful approach in their lives (Kabat-Zinn, 1982; Segal, Williams, & Teasdale, 2002). Throughout the class, patients engage in exercises that begin to create awareness, mediation skills, as well as developing mindfulness in daily life (Kabat-Zinn, 1982).

**Mindfulness based cognitive therapy.** Impressed with the proven efficacy of the MBSR program for treating patients who were suffering from chronic pain and anxiety disorders, Segal et al. (2002) investigated the possibility of his treatment would be effective for preventing relapse among patients with chronic recurrent depression. Derived from the format developed for the MBSR program, Segal et al. (2002) created mindfulness-based cognitive therapy (MBCT) to help prevent depressive relapse. A critical aspect of MBCT is to help patients make shifts in their relationship to their thoughts and feelings. Various techniques in the MBCT program aim to create a distance between ones’ thoughts and experiences, which allow the patient to interpret these things in a nonjudgmental way. In the MBCT program there is a focus on prevention of future relapses of depressive episodes by teaching numerous mindfulness techniques, increasing awareness of one’s experience and mood, as well as skills that help patients cope with negative experiences. Many patients who have recurrent depression struggle with negative thoughts, often negatively affect ones’ self-esteem. Approaching one’s thoughts from a nonjudgmental manner
allows patients to view their thoughts just as thoughts, not as personality attributes, and thereby decreases the affect of these thoughts on ones’ view of self. An important way that awareness is a tool for prevention since allows the patients to be able to notice mood changes that may be precursors to a depressive episode. By increasing awareness to the shifts in mood can act as warning signs that depression may be returning and that it may be beneficial to seek out support. Awareness also contributes to the way a patient interprets their bodies’ signals when experiencing negative thinking. Both of these aspects of awareness are important to patients who struggle with recurrent depressive symptoms since depression often includes agitated psychomotor functioning and anhedonia, which makes the simplest tasks difficult to do. MBCT employs the group format, which helps to normalize the participant’s emotions as well as any struggles that they have experienced while practicing mindfulness (Segal et al. 2002, p.46-78). In Baer’s (2003) review, she noted that among the various treatments that use mindfulness-based, MBCT program was “among the strongest studied.” Baer (2003) also reported that MBCT might be approaching “probably efficacious” designation for preventing depression relapse since it has created a manualized treatment and has use large sample sizes.

**Dialectical behavioral therapy.** DBT was developed as a treatment for patients with borderline personality disorder and parasuicidal behaviors. Marsha Linehan created DBT based on the philosophy that reality is constantly changing, and one must accept and simultaneously change oneself. DBT integrates CBT and Eastern mediation practices with an emphasis on the practice of mindfulness (1993). The standard form of DBT combines group skills training, individual therapy sessions, and telephone consultations for clients with therapists after hours, as well as consultation team for the therapists (Linehan, 1993). The therapist introduces skills to
increase the patient’s threshold of distress tolerance for unpleasant emotions, improve their interpersonal effectiveness, and to help to regulate their emotions more effectively.

**Acceptance and commitment therapy.** Hayes, Storsahl, and Wilson (1999) developed Acceptance and Commitment Therapy (ACT) in order to help clients return back to their value-directed behavior creating a more flexible relationship with thoughts, feelings, and emotions. Hayes et al., (1999) conceptualized that negative experiences would be triggered by negative thoughts, feelings, and emotions in which they avoid by detaching and decreasing awareness. ACT focuses on developing a nonjudgmental acceptance, mindfulness, and behavioral changes to elicit psychological flexibility. ACT encourages clients to accept their reactions, be present in the moment, choose a valued direction, and take action. During the process of therapy the client develops the skills they need in order to accept their life, while incorporating their own values with a commitment to change any distressing behavior (Hayes et al., 1999).

**Mindfulness-based treatments for eating disorder.** Kristeller & Hallet (1999) investigated the effectiveness of Mindfulness-Based Eating Awareness Therapy (MB-EAT) in a group setting for the treatment of BED. The researchers believed that by using meditation in their groups the patients would develop a better awareness of their bodily cues, such as satiety and hunger, as well as be able to accurately recognize when they eat due to boredom, or emotionality rather than physiological need (Kristeller & Hallet, 1999). In this study, twenty-one overweight females diagnosed with binge eating disorder participated. All participants were found to be free from any other comorbid personality and psychological disorders. The group meet weekly over the course of six weeks, with the exception of the first week, which had two back to back sessions in order to facilitate group cohesiveness. The treatment group addressed different topics each week, such as self-forgiveness, binge triggers, hunger and satiety awareness. The treatment group was
taught three different models of meditation: general mindfulness meditations, eating meditations, and mini-meditations. During general mindfulness meditations, participants were encouraged to develop a focused attention to whatever may be in the forefront of attention in the present moment and by observing any thoughts and bodily sensations as they come and go. During eating meditations, participants were taught how to become aware of their thoughts and emotions that may occur while eating. Mini-meditations were employed as a rescue tool, in which one could shift the focus from a negative event to the experience of the present moment. To increase mindful eating, the participants were instructed to place the utensil down after each bite of food and shift their attention to different tastes that each food has. The MB-EAT protocol also includes techniques, such as visualization of hunger to increase food awareness, mindful eating, and techniques to visualize and label their hunger. In the visualization and labeling program, the participants were instructed to create a representative symbol for their hunger and between meals were instructed to “watch” their hunger go by. Each week the participants completed several self-report measures of depression and anxiety, as well as monitoring the frequency and severity of any binge episodes that occurred that week. After six weeks, Kristeller & Hallet (1999) found the occurrence of binges significantly decreased and when they did occur the size of the binges were smaller. They also found increases in the participant’s feelings regarding control during a binge episode, awareness of hunger and satiety cues, and an overall increase in mindful awareness. Although there were no changes in the participant’s weight, there was a significant decrease in both self-reported depressive and anxiety symptoms (Kristeller & Hallet, 1999).

In a case study, Singh et al., (2008) evaluated the effectiveness of MB-EAT program developed by Kristeller and Hallet and modified it for the treatment of an individual with BED over the course of four years. Singh et al. (2008) treated a 30-year-old man who had struggled
with obesity for over fifteen years and had tried various diets with the intention of reducing his weight using MBCT. The participant reported no comorbid psychological disorders or medical problems during the time of the study, which took place over the course of 4 years, with a 12-month follow up. The major measure in this study was the participant’s weight, which was reported on a monthly basis. The results were a loss of over one hundred pounds over the course of four years. At the twelve-month follow up, the participant was able to maintain this weight loss. The participant was able to increase the amount of time it took him to consume his meals from five to seven minutes to completing his meals in a range of fifteen to twenty minutes. The participant also reported having an easier time avoiding snacking between meals, an increased ability to make healthier food choices, and expand his palette (Singh et al, 2008).

In addition to treating BED, there have been studies assessing the effectiveness of mindfulness-based treatments with BN and AN (Chen & Safer, 2010; Heffner, Sperry, Eifert, & Detweiler, 2002; Proulx, 2008). Heffner et al. (2002) explored the efficacy of ACT for treatment of an adolescent with AN. Using classic ACT techniques and skills (e.g., Thought Parade and Funeral Meditation), the researchers cultivated an increased acceptance of body and weight associated with distorted body image thoughts as well as transfer her values and importance of being thin into valuing being healthy (Heffner et al., 2002). The result of the treatment was a reposted increase in accepting thoughts regarding the patient’s body dissatisfaction and a significant reduction in typical anorexic symptoms, such as fear of weight gain (Heffner et al., 2002). Similarly, Chen and Safer (2010) examined the effectiveness of different models of DBT (e.g., University of Washington and Stanford models of DBT) in treating different BN symptoms. Results suggest that DBT is successful in decreasing binge eating and inappropriate compensatory methods (Chen & Safer, 2010).
Lastly, Proulx (2008) developed a program using Mindfulness-Based Eating Disorder (M-BED) treatment group which incorporates meditations in order to increase self-regulation, develop a nonjudgemental frame of mind, increase acceptance of self, and to elicit self-compassion within the patient (Proulx, 2008). The treatment includes psychoeducation, experiential process, group therapy, learning and practicing new mindfulness skills. The program’s main focus was to create a more “curious, interested, aware, open, gentler, kinder, and more authentic” sense of self in the patient who struggled with negative body dissatisfaction (Proulx, 2008, p.69). These mindfulness-based interventions exemplify the utility of these programs with various eating disorders while diversely addressing each population and the unique struggles associated with each eating disorder (Chen & Safer, 2010; Heffner et al., 2002; Proulx, 2008).

In summary, several mindfulness-based approaches to treat eating disorders have been developed. Specifically, DBT, MB-EAT, and MBSR, programs have all been assessed for their utility for the treatment of reducing the occurrence of binge eating episodes in both BED and BN (Chen & Safer, 2010; Heffner et al., 2002; Kristeller & Hallett, 1999; Proulx, 2008; Singh et al., 2008). These studies provide support and rationale for the use of mindfulness-based interventions when treating BED. In these interventions, patients are encouraged to accept themselves, experience their emotions in a more integrated manner, and explore their experiences and thoughts in a nonjudgmental way, which are aimed at decreasing binge eating behaviors and co-occurring mood and anxiety symptoms (Chen & Safer, 2010; Heffner et al., 2002; Kristeller, Baer, & Quillian-Wolever, 2006; Proulx, 2008; Singh et al., 2008).

Similarly, in this thesis I will investigate the effectiveness of treating BED from a mindfulness-based prospective. More specifically, I will assess how a protocol that was
originally designed for a group therapy format can be adapted for a client with subthreshold binge eating episodes in individual therapy. It is hypothesized that through this treatment, the individual will experience the following:

1. A reduction in binge eating episodes measured by self-report and on EDE-Q
2. A clinically significant reduction in anxiety symptoms
3. A clinically significant reduction in depression symptoms
4. A clinically significant increase in mindfulness
5. A clinically significant reduction in concern about eating, weight, and shape
6. A clinically significant increase in dieting restraint
METHOD

Client Characteristics and Presenting Problems

Ruth (a pseudonym) is a single Caucasian, heterosexual female in her late 40’s. She currently lives alone and is self-employed as a freelance consultant. At the time of intake Ruth presented with symptoms of depression, and binge eating once a day, which is an increase from her past behavior of two to three binge episodes per week for the past 10 years. Ruth stated she experiences a high level of distress following binge episodes, loss of control during eating, eating past the point of feeling full, and eating in isolation during a binge due to feelings of shame and embarrassment. Ruth reported a slight increase in weight (approximately 10 lbs) in the past two months. Ruth reported she has been struggling with binge eating behaviors and negative body image for the past 20 years. In the past she engaged in compulsive exercise behavior where she would run for at least two hours a day, but has not engaged in any strenuous exercise since fall 2009. She engages in binge eating as a way to cope with “life’s ups and downs” and prefers to “numb” herself to both the positive and negative emotions rather than experiencing them. Ruth identified the end of a romantic relationship two months ago as the trigger for her most recent increase in binge eating episode. Ruth indicated her triggers for a binge were feelings of failure and depression, eating foods with high sugar content (e.g. candy), and drinking alcohol.

Ruth endorsed feelings of a negative body image, which has gotten worse within the last two months due to early menopause and her increase in binge eating behaviors. This in addition to the inability to exercise has caused an increase in her feeling of dissatisfaction about the shape of her hips and waist area. Ruth endorsed an increase in sleeping, feelings of fatigue, and began isolating herself from her family and friends. She reported that she has struggled with depressive symptoms for the past 39 years but has been managing her symptoms with antidepressants for
the last 33 years. Although Ruth was taking 40 mg of Celexa for the past eight years for her depressive symptoms, at the time of intake she expressed an increase in difficulty managing her negative thought and feelings of helplessness and worthlessness. Prior to the intervention, Ruth had recently terminated treatment for her depression with another therapist in order to specifically address her problematic eating behaviors. During the first six sessions of the intervention, Ruth was attending group art therapy as a way to further explore her emotions in various mediums, such as oil and canvas painting, to process negative emotional events. Ruth was not enrolled in any weight loss programs at the time of or during the intervention.

**Measures**

**Clinical interview.** At the time of the intake interview, Ruth endorsed symptoms of binge eating disorder and mild depression. Ruth’s BED symptoms did not reach the clinical threshold of an objective binge episode—due to the size of her binges—which were usually comprised of an entire bag of potato chips or a movie theatre size box of candies in one sitting. She engaged in 6-8 binge episodes per week for the past two months. Ruth experienced marked distress following these binge eating episode, often ate past the point of feeling full, and ate more rapidly than usual. Ruth experienced a loss of control during eating and inability to stop eating during these episodes. She engages in binge eating in isolation due to feelings of shame and embarrassment about her eating behaviors. Ruth expressed that while she binge eats she experiences a decrease in awareness of her experience and her emotions while binge eating. EDNOS appeared to be the more appropriate diagnosis due to her subthreshold binge episodes, although she endorsed significant distress, loss of control, and other hallmark behaviors of BED. Her depressive symptoms consisted of feelings of worthlessness, frequent feelings of sadness, increased need for sleep, fatigue, psychomotor agitation, and weight gain. She indicated these
symptoms have been present since she was a young child. According to the patient, she was prescribed antidepressants as a teenager. Ruth reported the medications have decreased her depressive symptoms in severity, but did not fully eliminate them. Reflecting on her past and current presentation of depressive symptoms, Ruth met full criteria for Major Depressive Disorder, recurrent, moderate. Ruth denied any current suicidal ideation; she did endorse experiencing ideation in the past, but reported no ideation since receiving medical treatment. Recently, Ruth has noticed irregular heart rhythms, an increase in sweating, and chest pain, which caused her to begin to fear that there is something medically wrong with her. At the time of the assessment, she has only experienced these symptoms infrequently (i.e., once a month) and she did not report these experiences interfering with her life or causing her significant distress. Thusly, Ruth did not meet the full criteria for Panic Disorder without Agoraphobia. Ruth reported drinking 1-2 glasses of wine 2-3 times a week, but denied any current drug use at the time of treatment.

Various researchers have suggested that some diagnostic features of BED are more crucial to conceptualizing this disorder than others. More specifically, the symptoms of loss of control during a binge and the experience of marked distress following binge episode appear to be more essential than the caloric size of the binge episode (Fairburn & Wilson, 1993; Pratt, Niego, & Agras, 1998; Rosen et al., 1986; Striegel-Moore, et al., 2000). Using the suggestions from the research regarding the BED criterion, Ruth’s diagnosis and treatment for her subjective binge eating behavior was conceptualized as BED. This was done in order to address her maladaptive coping of emotional eating, her negative thoughts and beliefs surrounding food and her body, increase her awareness of her physical and emotional experiences in hopes to foster an increase of control while eating.
**Mindfulness.** The Mindful Attention Awareness Scale (MAAS) is a questionnaire consisting of 15-items where the respondents designate on a 6-point Likert-type scale (1=almost always to 6=almost never) for their awareness and their attention of current events as well as their experiences in the present moment (Brown & Ryan, 2003). MAAS items were designed to assess mindlessness as opposed to mindfulness, and sample items include, “I could be experiencing some emotional and not be conscious of it until sometime later,” and “I tend not to notice feelings of physical tension or discomfort until they really grab my attention.” The score is calculated by the mean of the respondent’s answer, where a higher score indicates a greater level of mindfulness. The MAAS has shown to have a good range of internal consistency over several samples (α= .80-.87) and has shown to have excellent test re-test reliability over the course of a 1-month time period (r=.81) (Brown & Ryan, 2003).

**Depression.** The Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a 21-item self-report questionnaire for determining the severity of depression in addition to examining the symptoms of the corresponding criteria for a depressive disorder as found in the DSM-IV. The items are rated on a four-point scale that ranges from 0 to 3. Items are summed to generate the total score. The BDI-II has shown to a high internal consistency (α = .91-.93) and has shown to have excellent test re-test reliability over the course of the one-week (r=. 93) (Beck, Steer, & Brown, 1996).

**Anxiety.** The Beck Anxiety Inventory (BAI; Beck & Steer, 1990) is a 21-item self-report measure, which assesses the severity of anxiety. The items are scored on a four-point Likert-type scale ranging from 0 to 3, and the total of each individual item produces the sum score. The BAI has proven to have adequate one-week test-retest reliability (r = .75) and a high degree of internal consistency (α = .92) (Beck, Epstein, Brown, & Steer, 1988).
Eating disorder behavior. The Eating Disorder Examination Questionnaire (EDE-Q 6.0; Fairburn & Beglin, 1994) is a 41-item; self-report questionnaire is derived from an interview-based assessment, the Eating Disorder Examination (EDE; Fairburn & Cooper, 1993). The EDE and EDE-Q both examine behaviors and attitudes associated with eating disorders. The EDE-Q has the same four subscales found in the EDE: Shape Concern and Weight Concern subscales measure the severity of concern regarding body shape and weight; the Restraint subscale measure the efforts to reduce caloric intake; and the Eating Concern subscale evaluates the severity of distress regarding eating. The questionnaire consists of 41 items, 30 of which ask the respondent the frequency of the behaviors or thoughts in the past 28 days using a seven-point Likert-type scale ranging from 0 to 6 (0 = no days to 6 = everyday). Samples of these questions on the EDE-Q include “Over the past 28 days, how dissatisfied have you been with your shape,” and “Over the past 28 days, how concerned have you been about other people seeing you eat?” Six items on the EDE-Q inquire about the presence of binge episodes, purge behaviors, and require the respondent provide the frequency of these in the past 28-day time period. An example of this type of item on the EDE-Q is “Over the past 28 days, how many times have you eaten what other people would regard as an unusually large amount of food (given the circumstances)” (Fairburn & Cooper, 1993). The remaining five items query the respondent’s weight, height, and if female, questions regarding their reproductive health (e.g. if they have amenorrhea). The respondent is to provide their “best estimate” of these biological markers. These items are not included in the scoring process, but are important to diagnosing AN using the criteria from DSM-IV (APA, 2001).

Researchers have found the EDE-Q to be a psychometrically sound self-report questionnaire with acceptable to good internal consistency (α =.76-.93) and test-retest reliability
for four subscales of the EDE-Q over the course of two weeks (ranging from .81-.94) (Luce & Crowther, 1999; Mond, Hay, Rodgers, & Owen, 2004; Peterson et al., 2007). Researchers have found the subscales are highly stable after a period of 28 days has passed, which is due to the time frame established in the measure (Luce & Crowther, 1999). Mond et al. (2004) found that the EDE-Q and the EDE are highly correlated across the four subscales, but indicated the greatest discrepancy between the two measures is found in the subscale of Restraint Concern. They cited problems with the EDE-Q’s utility in assessing binge eating behaviors since it does not distinguish between subjective and objective binge episodes (Mond et al., 2004). The EDE-Q is regarded as a beneficial measure of eating disorder behaviors and has been used to illustrate changes in pre and post treatment changes in attitudes and behaviors. It has been suggested that the EDE-Q not to be used solely as a screening measure or to diagnostic tool (Engelsen & Laberg, 2004; Luce & Crowther, 1999; Mond et al., 2004).

**Binge eating.** Throughout treatment Ruth was requested to record her binge eating episodes without being provided the criteria of a binge episode in order to examine her beliefs about binge eating, especially what qualified as binge eating. She was requested to endorse whether or not she had engaged in binge eating, the size of the binge, and her level of control, awareness, hunger, as well as any physical satiety cues she felt during the binge episode. She was asked to rate these items on a five-point Likert-type scale ranging from 1 to 5 (1= in control of eating, completely aware while eating, very hungry, and completely aware of body satiety cues during a binge episode to 5= out of control, completely distracted while eating, very full, and completely unaware of body satiety cues during a binge episode). Ruth was asked to complete the self-report binge eating form on a daily basis as part of her homework.

At the time of intake, she was administered the EDE-Q and MAAS to complete. Prior to
each session, Ruth was asked to complete the MAAS and self-report of her binges from the past week as part of her homework. On an alternating bi-weekly basis, Ruth was administered the BAI and the BDI-II prior to session.

Case Conceptualization and Treatment

Ruth has been engaging in emotional eating and subjective binge episodes since the age of 19. She identified that she engages in emotional eating as a way to “numb” her feelings out and avoid any intense emotional experiences. Ruth has struggled with anxiety regarding her body shape and throughout her life kept a strict diet and maintained an intense exercise regimen as a way to reduce her body dissatisfaction. In the fall she was diagnosed kidney stone, was unable to maintain her workout regimen and has not been exercising since. Her binge eating increased as a way to regulate her emotional instability after an intimate relationship ended in December. Ruth had struggled with being able to identify satiety cues while eating and not feeling connected to her emotional or physical experiences during binge eating. Ruth initially found her binge eating decreased her emotional distress, but has since noticed a significant increase of distress and negative emotions following the completion of a binge episode. She endorsed an increase in negative thinking, especially thoughts about failure and worthlessness, an increase in body dissatisfaction, and an increase in depressive symptomology. Ruth exclusively binges in the evening and she believed that due to the high sugar content of the candy she binges on that she reported feeling “foggy” in the morning. She often feels guilty about binging and as a way to compensate, she will restrict her caloric intake during the day. This pattern of restriction throughout the day and the subsequent binging at night helps to maintain the binge eating cycle and may subsequently increase the frequency of binge episodes. A mindfulness-based intervention was chosen for Ruth for her treatment with the consideration of how she uses food
as a way to disconnect from emotions and feelings. The treatment focus will be on increasing awareness of emotions, bodily cues during eating, and creating a less judgmental mindset for her experiences and her emotions.

Treatment was administered in a 16-session format following the format developed by Proulx (2008; see Appendix A). Proulx’s Mindfulness-Based Eating Disorder Treatment group (M-BED) combined aspects of Kabat-Zinn’s MBSR and Kristeller and Hallet’s MB-EAT programs to help patients who struggle with binge eating (Kabat-Zinn, 1979; Kristeller & Hallet, 1999). For the purpose of this study, sessions were conducted in a one-on-one format for one hour over the course of 16 weeks rather than meeting in a group for two hours as was done in the Proulx study. Treatment included experiential components (e.g. sitting meditation, body scan meditation, yoga, loving-kindness meditation, eating awareness, walking meditations, and mini-meditations), exploring triggers of binges, interpersonal relationships, examining and challenging beliefs about self and foods, and cultivating an increased awareness and nonjudgmental approach of feelings and experiences.

Each session began with the review of homework from the previous week’s session and explored how the activities were incorporated into the client’s daily life. Every session introduced a topic associated with binge eating, such as increasing awareness of unrealistic expectations and perfectionism, exploring difficulties with interpersonal relationship, examining messages from the media, culture, and family, identifying triggers and how to use appropriate coping skills, and acceptance of one’s body, thoughts, and experiences. Weekly homework included sitting meditations, mindful eating exercises, as well as the monitoring of binge eating episodes and experiences during them.
RESULTS

In order to test the hypotheses, Ruth’s pre- and post-treatment scores on the MAAS, BDI-II, BAI, global scale and subscales of EDE-Q were examined for clinical significance using the methods provided by Jacobson, Roberts, Berns, and McGlinchey (1999). Jacobson et al. (1999) stated that clinical significance is derived from examining any reliable change (RC) scores and cutoff points (c) using the formulas below. Reliable change scores help determine the likelihood of self-reported symptom improvement is due to factors beyond error and random chance, and cutoff points are established to estimate whether the participant’s post-treatment scores are closer to non-clinical or normal functioning than to the clinical population (Jacobson et al., 1999).

\[
RC = \frac{x_{\text{post}} - x_{\text{pre}}}{\sqrt{2(s_{\text{pre}}\sqrt{1 - r_{\text{test/retest}}})^2}}; \quad c = \frac{s_{\text{non-clinical}}M_{\text{clinical}} + s_{\text{clinical}}M_{\text{non-clinical}}}{s_{\text{clinical}} + s_{\text{non-clinical}}}
\]
To test hypothesis one, which posited that a mindfulness-based intervention would reduce the frequency of binge episodes, Ruth was asked to track the frequency of her binge eating throughout treatment. Ruth reported at the beginning of treatment engaging in binge eating up to 8 times per week. After the protocol was completed, Ruth reported binging on average fewer than 3 times a week. Her progress is illustrated in Figure 1, which charts the frequency of her binge episodes over a seven-day period. Ruth did not record her binge episodes for weeks 4, 6, or 12 stating that she had forgotten to complete the record forms for that week, which has resulted the missing data.

![Binge Frequency](image.png)

*Figure 1. Changes in reported binges over the course of treatment indicated on weekly self-report form.*
In addition to using the weekly forms to track the frequency of binge eating episodes, the EDE-Q also examined the frequency of binge eating episodes prior to and after treatment (see Figure 20). Ruth’s reported binge episode frequency on the EDE-Q indicated a clinically significant decrease ($RC = -2.67$, $c = 20$).

*Figure 2. Changes and Norms in Eating Disorder Examination-Questionnaire Binge Eating Frequency*

*Note:* Norms developed by Wilfley et al., 2000.
Inconsistent with hypothesis 2, Ruth’s score on the BAI did not exceed the required value of 1.96 to ensure the change in score is not a result of error ($RC=-.78$) (Jacobson et al., 1999). This indicates that although she did experience a decrease in BAI score, it was not a clinically significant change ($\alpha=2.5$) (see Figure 3).

*Figure 3. Changes in Beck’s Anxiety Inventory score over the course of treatment.*
Ruth’s depressive symptoms were measured by the bi-weekly administration of the BDI-II throughout the course of treatment (see Figure 4). Consistent with hypothesis 3, the calculation of reliable change formula and cutoff scores showed a clinically significant change, exceeding the baseline of 1.96 ($RC=3.91$, $c=7.04$) (Jacobson et al., 1999).

![Bi-Weekly Administration of BDI-II](image)

*Figure 4. Changes in Beck’s Depression Inventory scores over the course of treatment.*
Ruth’s MAAS remained fairly stable throughout treatment, hovering consistently between 3 and 4 as displayed in Figure 5. In the computation of reliable change for the Ruth’s scores on the MAAS did not exceed 1.96 ($RC=-.75$), thus inconsistent with hypothesis 4, she did not experience a clinically significant change in mindfulness and did not pass the cutoff score ($c=5.30$) in Ruth’s attention or awareness (Jacobson et al., 1999).

*Figure 5. Changes in Mindful Attention Awareness Scale scores over the course of treatment*
In regard to hypothesis 5, which posited there would be evidence of clinically significant changes in Ruth’s responses to the EDE-Q (see Table 1). Several of her subscale scores are indicative of a shift from eating disordered behaviors and attitudes to healthier behaviors and attitudes. The pre- and post-treatment scores of the global score ($RC=-.33$, $c=-.28$), shape concern subscale ($RC=.95$, $c=.34$), and weight concern subscale ($RC=.94$, $c=.28$) in the EDE-Q all displayed changes towards the non-clinical population, but did not reach clinical significant change. Clinically significant changes were found in the eating concern subscale ($RC=-2$, $c=.56$) and the dietary restraint subscale ($RC=2.98$, $c=1.83$) (Jacobson et al., 1999).

Table 1. Pre-and post-treatment scores in EDE-Q, cutoff scores, and non-clinical norms for the EDE-Q

<table>
<thead>
<tr>
<th>EDE-Q</th>
<th>Pre-Treatment</th>
<th>Post-Treatment</th>
<th>Reliable Change</th>
<th>Cutoff Scores</th>
<th>Non-Clinical Norms</th>
</tr>
</thead>
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<tr>
<td>Global Scores</td>
<td>1.95</td>
<td>1.73</td>
<td>-0.33</td>
<td>0.28</td>
<td>1.41</td>
</tr>
<tr>
<td>Dietary Restraint*</td>
<td>0.20</td>
<td>3.00</td>
<td>-2.98</td>
<td>1.83</td>
<td>1.31</td>
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<tr>
<td>Eating Concerns*</td>
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<td>-2.00</td>
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<td>0.61</td>
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<tr>
<td>Weight Concerns</td>
<td>2.60</td>
<td>1.60</td>
<td>-0.93</td>
<td>0.28</td>
<td>1.64</td>
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<tr>
<td>Shape Concerns</td>
<td>2.38</td>
<td>1.73</td>
<td>0.95</td>
<td>0.34</td>
<td>2.10</td>
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</table>

*Note:* *=Indicates clinically significant change; Norms developed by Mond et al. (2006).
DISCUSSION

In this thesis I assessed the effectiveness of a mindfulness-based protocol for binge eating disorder focusing on an individual client. I hypothesized that the individualized mindfulness-based intervention would result in clinically significant increase in the level of mindful awareness, which would result in a clinically significant reduction in binge eating, depression and anxiety symptoms, as well as clinically significant shift away from disordered eating attitudes and behaviors. The results confirmed several hypotheses, while several others were rejected.

Significant Results

It has been suggested that increasing one’s awareness to their experiences, emotions, and feelings in a non-judgmental way can counteract the urge to avoid and reduce the need to escape these intense experiences by engaging in binge eating (Kristeller & Hallet, 1999). Ruth has been engaging in subthreshold binge eating episodes as a way to “numb” both positive and negative strong emotions. While these findings should be interpreted cautiously, the results are encouraging for mindfulness-based interventions for the treatment of binge eating disorder. The results confirmed a clinically significant reduction in frequency in her binge eating based on her EDE-Q, clinically significant reduction in depressive symptoms, a clinically significant decrease in EDE-Q Eating Concern, and a clinically significant increase in the EDE-Q Dietary Restraint. These results indicate that Ruth has been able to increase her control regarding food, reduce the frequency of binge episodes, and decrease her distress about eating. Ruth reported an increase of acceptance of herself and her experiences, an increase in nonjudgemental attitude, and an increase in general mindfulness, although these changes were not reflected in her MAAS score.
She stated she has benefitted from these the treatment and these changes. She is now able to experience herself as a “happier and less judgmental person.”

These findings echo the results from earlier studies, in which significant decreases in binge eating frequency, decreases in both depressive and anxiety symptoms, as well as the participants reporting an increase in detachment from thoughts and a decrease in critical attitudes toward their self were observed (e.g., Kristeller & Hallett, 1999). These finding add to the limited literature illustrating the efficacy and effectiveness of mindfulness-based interventions for the reduction of binge eating.

The other hypotheses were rejected. There are many explanations for these characteristics not achieving clinical significance during this study. There were several factors that could have impacted the efficacy of the intervention. During the middle of treatment, Ruth realized how dire her financial situation currently was due to lack of employment as a result of the economic climate. This was a significant stressor for Ruth and this topic became a focus in our treatment, as it became apparent how closely associated her sense of self-worth is related to her financial security. Another factor that may have affected the treatment was Ruth’s inconsistent completion of her homework, which regularly consisted of mediation practices, mindful eating, and tracking her binge episodes throughout the week. This topic was brought up in session several times regarding barriers to the completion of homework. Ruth stated that she would worry about failing at the homework or meditation and found herself anxiously avoiding the homework during the initial sessions. This inconsistency may be related to why her level of awareness did not significantly increase. Many researchers have argued that homework compliance is strongly correlated to increases in mindfulness and general success in treatment (Baer, 2003; Kristeller & Hallet, 1999; Kabat-Zinn, 2003).
A few other factors may explain why Ruth’s awareness scores show a shift towards a decrease in mindful awareness. Ruth’s initial MAAS score was a 4 on a 6-point Likert-type scale indicating higher level of awareness than the general population. This score could be elevated due to social desirability bias during the intake and wanted to make a good impression on the therapist. The lack of significant change also could be attributed to Ruth’s previous experience with meditation and mindfulness activities. Ruth indicated that she felt that experienced an increase of acceptance and a decrease in judgmental feelings, especially with her own experiences. These facets of mindfulness, acceptance and non-judgment, are not directly assessed by the MAAS.

Additional reasons for non-clinically significant change on several variables may include the adaptations made to Proulx’s (2008) protocol. This protocol was originally intended for patients with bulimia nervosa in a group therapy setting. Many accommodations were made to this protocol in addition to converting a group treatment into an individualized treatment. Ruth reported binge episodes that were subthreshold (i.e., typically a movie-sized box of candies), but resulting in significant distress, guilt, and experienced a sense of loss of control. Ruth did not receive the support of a group, which was provided in the original protocol, which also could have affected her level of awareness. Finally, this study was conducted at a training clinic for doctoral students in clinical psychology at Pacific University. While the therapist had previously completed a mindfulness-based training class, as well as other counseling skill-based classes, the therapist was still a novice with providing therapy.

Limitations

The primary limitations of this study were directly related to the size \( (N=1) \) and the lack of a control group against which to compare the results. Therefore causality cannot be implied.
**Directions for Future Research**

Even though this study had several limitations, mindfulness-based interventions continue to show promise for the treatment of BED (Baer et al., 2005; Kristeller & Hallett, 1999). In addition, there is a lack of research in the area of preventive work of eating disorders, especially binge eating and obesity by using relative mindfulness-based techniques. In general, the area of research in mindfulness-based treatment is relatively young and as with the development of validated studies may require various manipulations of protocols. A majority of mindfulness-based interventions have been conducted in group therapy settings; it would be beneficial to research the effectiveness and how to adapt protocols for mindfulness-based group therapy into protocols for individualized therapy sessions with a variety of psychopathological disorders (Baer, 2003). Future studies should investigate the effectiveness of other individualized mindfulness-based treatments, conducting dismantling studies to investigate which mindfulness-based techniques are most valuable to treatment. The further investigation of the utility of mindfulness-based interventions in the area of prevention of eating disorders should also receive more attention.

Conducting this study was a wonderful experiential learning opportunity, one where keeping the client’s needs always at the forefront, as well as maintaining flexibility in order to tailor a group protocol to an individual client without sacrificing any of the treatment. Reflecting upon this process, I feel that enhanced and gained many skills, which has positively affected my role as a therapist, in addition to developing an exceptional rapport with Ruth, in which she was able to accomplish some of her goals and regain feelings of control in her life.
References


## Appendix A

### Session Outlines (Proulx, 2008)

<table>
<thead>
<tr>
<th>Session</th>
<th>Discussion</th>
<th>Psychoeducation</th>
<th>Experiential</th>
<th>Home Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction. Q &amp; A after meditation</td>
<td>Overview of MBSR</td>
<td>Raison eating exercise, diaphragmatic breathing body scan</td>
<td>Daily body scan using CD. Complete Pleasant Events calendar. Eat one meal mindfully over the week. Journaling</td>
</tr>
<tr>
<td>4</td>
<td>Reviewed home practice. What was noticed about triggers of stress, where it was felt in the body, and what coping strategies</td>
<td>The mindful intentions of nonjudgment, loving kindness, compassion, acceptance, and patience were</td>
<td>Loving-kindness meditation</td>
<td>Daily formal meditation practice using CD. Eat four meals mindfully over the course of the week. Use mini-meditation before</td>
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<td>5</td>
<td>Reviewed home practice. Patterns in tendencies towards self-judgment, control, perfectionism, and comparison to others were explored. Experiences with mindful intentions of nonjudgment, loving-kindness, compassion, acceptance, and patience during the previous week were discussed. Discussed the authenticity of family relationships and how family impacted the participant’s sense of self, either as a source of stress or support.</td>
<td>Relationships with family and friends impact our sense of identity, self worth, and level of stress.</td>
<td>Sitting meditation</td>
<td>Daily formal meditation practice using CD. Eat 5 meals mindfully over the week. Continue with mini-meditation before meals and throughout the day. Notice how relationships impact her sense of self and whether the relationships were a source of stress or support. When aware of stress, practice nonjudgment, compassion, and self-soothing strategies. Journaling.</td>
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<p>| 6 | Reviewed home practice. Discussed issues of trust and getting needs met within interpersonal relationships. Discussed eating patterns, the quality of her binging behaviors, triggers of binges, and the range of emotional needs underlying the | The concepts of hunger and taste satiety were presented. Styles of communication were presented. | Eating Exercises: Awareness of hunger, fullness, and taste satiety | Daily formal meditation practice using CD. Eat 6 meals mindfully over the week, noticing degrees of hunger, fullness, and taste satiety. Continue with mini-meditation before meals and throughout the day. Notice patterns of |</p>
<table>
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<tr>
<th>7</th>
<th>Experiences with assertive, aggressive, and passive communication styles were discussed. The participant shared her thoughts and feelings related to hunger and satiety over the previous week. Explored reactions to the Slim Hopes documentary.</th>
<th>Viewed a portion of the Media Education foundation Documentary, Slim Hopes (Jhally &amp; Kilbourne, 1995).</th>
<th>Sitting meditation</th>
<th>Daily formal meditation practice using the CD. Eat 7 meals mindfully over the week using the mini-meditation before meals as needed to raise awareness and lower anxiety. Notice the impact of media images and cultural pressure on the participant’s values and sense of identity.</th>
</tr>
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<td>8</td>
<td>Reviewed observations of media and cultural messages over the previous week and how these impacted the participant’s sense of self, body image, and authenticity.</td>
<td>Aspects of healthy lifestyle were presented synthesizing the components learned throughout the prior seven weeks of treatment. Discussed ways to continue a mindfulness practice after treatment.</td>
<td>Wisdom meditation</td>
<td>A list of further readings and resources was provided.</td>
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